UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/767,325	01/29/2004	Theodora S. Ross	UM-08737	5496

7590 12/20/2005

MEDLEN & CARROLL, LLP
Suite 350
101 Howard Street
San Francisco, CA 94105

EXAMINER	
FETTEROLF, BRANDON J	

ART UNIT	PAPER NUMBER
1642	

DATE MAILED: 12/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/767,325	ROSS ET AL.	
	Examiner	Art Unit	
	Brandon J. Fetterolf, PhD	1642	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-15 is/are pending in the application.

4a) Of the above claim(s) 12-15 is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-11 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claim 1-11, as specifically drawn to a method for detecting cancer comprising providing a sample from a subject suspected of having cancer; and detecting the presence or absence of antibodies to HIP1 in said sample, classified in class 435, subclass 7.1.

II. Claims 12-15, as specifically drawn to a kit for detecting cancer in a subject comprising a reagent that specifically detects the presence or absence of antibodies to HIP1 in a sample; and instruction for using said kit for detecting cancer in said subject, classified in class 435, subclass 810.

The inventions are distinct, each from the other because of the following reasons:

The invention of Group I and Group II are related because the kit of Group II can be used in the method of Group I. However, the kit does not appear to be required to practice the instantly claimed method. Thus, notwithstanding the relationship, the two inventions are patentably distinct.

Because the inventions are distinct for the reasons given above, have acquired a separate status in the art as shown by their different classification, and the search required for each group is not required for other groups because each group requires a different non-patent literature search due to each group comprising different products and/or method steps, restriction for examination purposes as indicated is proper.

During a telephone conversation with Tanya Arenson on 11/22/2005 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-11, as specifically drawn to a method of detecting cancer, comprising providing a sample from a subject suspected of having cancer and detecting the presence or absence of antibodies to HIP1 in said sample. Affirmation of this election must be made by applicant in replying to this Office action.

Claims 1-15 are currently pending

Claims 12-15 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claims 1-11 are currently under consideration.

Information Disclosure Statement

The information disclosure statement filed on 05/10/2004 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1 and 3-11 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between he steps. See MPEP § 2172.01. The omitted steps are: a correlation step describing how the results of the method relate back to the preamble of the method objectives.

Claims 2-11 are rejected as vague and indefinite for reciting the term HIP1 as the sole means of identifying the claimed molecule. The use of laboratory designations only to identify a particular molecule renders the claims indefinite because different laboratories may use the same laboratory designations to define completely distinct molecules. For example, Vogt et al. (The Journal of Experimental Medicine 2004; 199: 753-761) teaches a hedgehog-interacting protein referred to as HIP1 (Abstract). The rejection can be obviated by amending the claims to specifically and uniquely identify HIP-1, for example, by SEQ ID NO. and function of HIP1.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The factors to be considered in determining whether undue experimentation is required are summarized In re Wands 858 F.2d 731, 8 USPQ2nd 1400 (Fed. Cir, 1988). The court in Wands states: "Enablement is not precluded by the necessity for some experimentation such as routine screening. However, experimentation needed to practice the invention must not be undue experimentation. The key word is 'undue,' not 'experimentation.' " (Wands, 8 USPQ2d 1404). Clearly, enablement of a claimed invention cannot be predicated on the basis of quantity of experimentation required to make or use the invention. "Whether undue experimentation is needed is not a single, simple factual determination, but rather is a conclusion reached by weighing many factual considerations." (Wands, 8 USPQ2d 1404). The factors to be considered in determining whether undue experimentation is required include: (1) the quantity of experimentation necessary, (2) the amount or direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims.

The claims are broadly drawn to a method for detecting cancer, comprising providing a sample from a subject suspected of having cancer and detecting the presence or absence of antibodies to HIP1, wherein the presence of antibodies to HIP1 is indicative of cancer. Thus, the claims imply that the presence or absence of antibodies to HIP1 in any sample can be used to detect any and/or all cancers.

The scope of the instant claims is not commensurate with the enablement of the instant disclosure, because practice of the claimed invention would require undue experimentation by an artisan of ordinary skill in the art. The instant specification is not enabling for claims drawn to detecting any and/or all cancers comprising providing a sample from a subject suspected of having cancer; and detecting the presence or absence of antibodies to HIP1 in said sample, wherein the presence of antibodies to HIP1 is indicative of cancer. The specification teaches (page 36, lines 1-

10) that experiments conducted during the course of development of the present invention have demonstrated that subjects with prostate cancer preferentially exhibit a humoral response to HIP1. For example, the specification provides (page 83, lines 10-14) a humoral response to HIP1 in a TRAMP mouse model for prostate cancer, wherein 10/20 Tag positive TRAMP mice had antibodies in their serum to HIP1 whereas 0/10 normal Tag negative mice had antibodies in their serum to HIP1. In addition to the TRAMP mouse model, the specification teaches (page 82, Example 8) a humoral response to HIP1 in human prostate cancer patients, wherein 5/20 were positive for a humoral response to HIP1 in the prostate cancer patient cohort whereas 9/23 were positive in the "normal" patient cohort. Thus, while the specification appears to imply a nexus between a correlation between cancer detection and autoantibody presence to HIP1 in the TRAMP mouse model, the specification does not appear to clearly indicate whether or not antibodies to HIP1 is indicative of the cancerous state in a cancer patient. In other words, what may be "preferable" in the lab is only suggestive and does not qualify as a reasonable expectation of success, especially in a highly unpredictable art such as detecting the presence or absence of cancer. In the instant case, the TRAMP mouse model is an art recognized transgenic model of prostate cancer, which recapitulates many of the features of prostate cancer in humans (*see* Gupta, S. International Journal of Oncology 2004; 25: 1133-1148). For example, Gupta discusses that the TRAMP model has been used for a wide range of studies including the analysis of growth factors, assessment of intermediate and endpoint markers, markers of angiogenesis, and for evaluating the efficacy of natural agents and synthetic compounds in chemoprevention and therapy of prostate cancer (page 1138, 2nd column, beginning on the bottom to page 1140, 1st column). Thus, while the prior art teaches that the TRAMP mouse model is useful for a variety of studies, the art is silent with regards to the production of a humoral response to a specific cancer related antigen and using these results as a diagnostic marker for cancer. Furthermore, if a molecule such as an antibody to HIP1 is to be used as a surrogate for a disease state, some disease state must be identified in some way with the molecule. There must be some type of pattern that would allow the claimed antibody to be used in a diagnostic manner. For example, antibodies to HIP1 were found in serum of "normal" patients, as well as patients suffering from prostate cancer as evidenced by the disclosure (page 82, Example 2). Similarly, the specification teaches (page 63, lines 1+) that many proteins such as HIP1 are expressed in normal tissues and diseased tissues. Therefore, one needs to know that antibodies to HIP1 are

present only in a cancer patient to the exclusion of normal patients. Thus, in the absence of any correlation between antibodies to HIP1 with any known disease or disorder, any information obtained from various profiles in both normal and diseased tissue only serves as the basis for further research on the observation itself. Therefore, absent evidence of the antibodies to HIP1 presence including the correlation to a diseased state, one of skill in the art would not be able to predictably use antibodies to HIP1 in any diagnostic setting without undue experimentation.

Reasonable correlation must exist between the scope of the claims and the scope of the enablement set forth. In view of the quantity of experimentation necessary the limited working examples, the nature of the invention, the state of the prior art, the unpredictability of the art and the breadth of the claims, it would take undue trials and errors to practice the claimed invention.

Therefore, NO claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brandon J. Fetterolf, PhD whose telephone number is (571)-272-2919. The examiner can normally be reached on Monday through Friday from 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeff Siew can be reached on 571-272-0787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Brandon J Fetterolf, PhD
Examiner
Art Unit 1642

BF

JEFFREY SIEW
SUPERVISORY PATENT EXAMINER
12/5/05